

Equivalent Linear Relations
and Equivalent Linear Systems

Date: _____

Equivalent Linear Equations - two equations that have the same graph.

EX: Graph $y = \frac{2}{3}x - 4$ and $4x - 6y = 24$

EX: Find two equivalent equations for $x + y = 5$.

**To do this multiply the equation by any real number.

Equivalent Linear Systems - pairs of linear equations that have the same solution (the same intersection point).

EX: Solve by graphing:

$$\begin{aligned} 3x - 2y &= 18 \\ 2x + y &= 12 \end{aligned}$$

AND

$$\begin{aligned} 5x - y &= 30 \\ x - 3y &= 6 \end{aligned}$$

*Note: Equivalent linear systems can be found by adding or subtracting the original equations.